The effect of acute fatigue on countermovement jump performance in rugby union players during preseason training

Kennedy, R., & Drake, D. (2015). The effect of acute fatigue on countermovement jump performance in rugby union players during preseason training. *Journal of Sports Sciences*, *33*(1), s44-s59. https://doi.org/10.1080/02640414.2015.1110324

Link to publication record in Ulster University Research Portal

Published in:
Journal of Sports Sciences

Publication Status:
Published (in print/issue): 01/12/2015

DOI:
10.1080/02640414.2015.1110324

Document Version
Author Accepted version

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Download date: 05/05/2023

performance characteristics of an elite inter-county squad at three time points. Following ethical approval and informed consent 26 participants were assessed at the start of preseason (November), following preseason (January) and in-season (March). Measurements included stature, body mass, sum of 8 skinfold sites (∑Skf8), estimated body fat (bf%), squat jump (SJ) and countermovement jump (CMJ) height, 5-, 10- and 20-m sprint speed, 1 repetition maximum (1RM) bench press (1RM-BP), 1 RM deadlift (1RM-DL) and YoYo intermittemt recovery test (IRT) 2. A multivariate analysis of variance (MANOVA) was used to determine variations. The mean squad stature, body mass, ∑Skf8 and bf% were 183.5 ± 7.5 cm, 85.4 ± 10.4 kg, 96.2 ± 32.4 mm and 12.4 ± 2.6%, respectively. Anthropometric variations were observed with an overall increase in participants' body mass, with subsequent decreases in ∑Skf8 and bf% (−21.5%, P = .002; −1.43%, P = .004) from November to March. A positional variation was observed with midfielders having greatest stature (192.4 ± 4.3 cm), while full-forwards showed highest body mass and adiposity (93.2 ± 16.5 kg, 130.3 ± 36.4 mm, 15.2 ± 2.7%). Performance variations showed improvements in average speed over 5 and 10 m (−7%, P = .001; −3.4 %, P = .008, respectively), SJ (+10.1%, P = .013), CMJ (+9.8%, P = .013), 1RM-DL (+19.7%, P = .013), Yo-Yo IRT2 (+34.9%, P < .001) and estimated $\dot{V}O_{2max}$ (8.8%, P < .05) noted from November to March, with minor improvements observed in January. Performance variations (all P < .05) showed half-forwards performed the best for SJ and CMJ (36.7 ± 4.2 cm, 38.3 ± 4.1 cm, respectively) and achieved higher distances in the YoYo IRT2 (1432 ± 422 m). Midfielders possessed the lowest jump height in SJ (30.3 ± 3.8 cm) and CMJ (31.5 ± 4.1 cm,). Half-backs achieved the fastest sprint speeds over 5 and 10 m (1.1 ± 0.1 s, 1.8 ± 0.1 s) while midfielders were significantly slower than all other positions over 20 m (P = .029). Variations are evident with respect to anthropometric and performance profiles across a Gaelic football season. Anthropometric variations are more pronounced following preseason to in-season, while performance variations are noted between start of preseason and following preseason. Applied practitioners should consider these findings when implementing a season training plan.

D1.P51. The effect of acute fatigue on countermovement jump performance in rugby union players during preseason training

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A countermovement jump (CMJ) is routinely used in many sporting settings to provide a functional measure of neuromuscular fatigue. However, the variables that are most sensitive to fatigue remain somewhat unclear (Gathercole, Sporer, Stellingwerff, and Sleivert, 2015, *International Journal of Sports Physiology and Performance*, 10, 84–92). The aim of this study was to examine the usefulness of selected CMJ variables to monitor the post-exercise fatigue and recovery cycle. With institutional ethics approval, nine male academy rugby union players performed five CMJ trials on three occasions, at baseline, 24 h and 48 h post-baseline. The fatiguing protocol consisted of a typical intense training day during the preseason period (speed/skills training AM and resistance training PM). A total of 21 CMJ variables were derived from the force–time curve, 15 relating to output (CMJ-OUT) and 6 relating to the mechanics of the jump (CMJ-MEC). Data were analysed using a repeated measures one-way ANOVA with Bonferroni post hoc comparisons. There were no significant differences for any CMJ variable at the 24 h time point. At 48 h, three CMJ-MEC variables (eccentric duration, total duration and the force at zero velocity) demonstrated a significant decrement in performance when compared to baseline (P < 0.05). Neuromuscular fatigue may manifest itself as an altered movement strategy rather than a simple reduction in physical output, when measured using a CMJ. Practitioners are therefore advised to incorporate CMJ-MEC variables when trying to identify subtle changes in the bimodal recovery pattern associated with stretch-shortening cycle induced fatigue. Such information may help with the prescription of optimal training loads, whilst attempting to avoid overtraining and injury.

D1.P52. Lower body compression tights elicit a practically significant benefit on sub-maximal running economy but not vertical jump performance

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